REMARKS

Claims 1, 8, 30, 33, and 34 have been amended. Claims 36 and 38 have been cancelled. Claims 31, 37, and 41 were previously cancelled. Claims 1-30, 32-35, 39 and 40 are pending in the application. Applicant reserves the right to pursue the original claims and other claims in this and other applications.

Claims 36 and 38 stand objected to under 37 C.F.R. 1.75 as being a substantial duplicate of claims 30 and 33. Claims 36 and 38 have been cancelled.

Claims 1-4, 8-12, 30, 32, 33, 36, 38 and 40 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Harada (U.S. Patent No. 7,133,072) in view of Bakhle et al. (U.S. Patent No. 6,061,092). Claims 5, 13, 34, and 39 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Harada in view of Bakhle and further in view of Takayama et al. (U.S. Patent No. 6,683,643). The rejections are respectfully traversed and reconsideration is respectfully requested.

Claim 1 recites an image processing apparatus comprising "a storage system for storing first data corresponding to at least one actual image and second data corresponding to at least one dark current reference image and at least one white reference image captured by a pixel array; ... wherein said storage system stores a plurality of gain conditions and a plurality of exposure times associated with said first data and a plurality of gain conditions and a plurality of exposure times associated with said second data."

Claim 8 recites a pixel compensation method comprising "capturing, using a pixel array, first data corresponding to at least one dark current reference image and at least one white reference image; storing reference data corresponding to said at least one dark current reference image and said at least one white reference image in a

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storage system, said storage system storing a plurality of gain conditions and a plurality of exposure times associated with said first data; capturing, using a pixel array, at least one actual image; [and] storing second data corresponding to said at least one actual image in said storage system, said storage system storing a plurality of gain conditions and a plurality of exposure times associated with said second data."

Claim 30 recites a digital camera system comprising a "dark current and defective pixel compensation circuit for compensating first data corresponding to an actual image; ... wherein the dark current and defective pixel compensation circuit includes a storage system, coupled to a processor via a bus, for storing said first data corresponding to said actual image and second data corresponding to at least one of at least one dark current reference image and at least one white reference image captured by said image sensor."

Claim 33 recites a computer system having an imaging device comprising "a storage system for storing first data corresponding to at least one actual image and second data corresponding to at least one dark current reference image and at least one white reference image captured by a pixel array."

Claim 34 recites an image processing apparatus comprising "a storage system for storing first data corresponding to a plurality of actual images and data corresponding to a plurality of dark current reference images and a plurality of white reference images captured by a pixel array."

Claim 39 recites a dark current and defective pixel compensation circuit comprising "a storage system, coupled to said at least one processor via said bus, for storing first data corresponding to said at least one actual image and second data

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corresponding to said at least one dark current reference image and said at least one white reference image captured by said image sensor."

Claim 40 recites an integrated circuit comprising "a dark current and defective pixel compensation circuit for compensating first data corresponding to an actual image; ... wherein the dark current and defective pixel compensation circuit includes a storage system, coupled to a processor via a bus, for storing said first data corresponding to said actual image and second data corresponding to at least one dark current reference image and at least one white reference image captured by said image sensor."

The Office Action admits that the Harada and Bakhle combination fails to teach or suggest storing white reference images as recited in claims 1, 8, 30, 33, 34, 39 and 40. To overcome this failing, the Office Action cites to Takayama. Takayama relates to a system for detecting and correcting defective pixels for a charge coupled device (CCD) image sensor. Takayama discloses that these pixel defects are represented by both white flaws and black flaws. (Takayama, col. 1, ll 17-27) Takayama explains that white flaws occur when "signals in which excessive signal components are added to output signals which are supposed to be outputted in accordance with luminance of a subject are outputted accidentally to make an image to be whitish." (Takayama, col. 1, ll 17-27) Takayama also explains that black flaws occur when "signals in which certain signal components are subtracted from output signals which are supposed to be outputted in accordance with luminance of a subject are outputted accidentally to make an image to be blackish." (Takayama, col. 1, ll 17-27)

Applicant respectfully submits that Takayama does not capture and store white reference images. In the claimed invention, white reference images are captured under a variety of light conditions including no light and light at various illuminations.

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Gain conditions and exposure times associated with the white reference and dark current reference images are also stored. Applicant respectfully submits that the claimed invention stores data, conditions, and times from these images, whereas Takayama merely stores positional data from defective pixels. Takayama's positional data is then used for a replacement operation. At no point does Takayama store a plurality of gain conditions and exposure times "associated with" data of a dark current and white reference images. As such, Takayama does not disclose, teach or suggest every limitation of claims 1, 8, 30, 33, 34, 39 and 40. Applicant respectfully requests the withdrawal of the rejection and allowance of the claims.

Claims 2-5 depend from claim 1 and are allowable for at least the same reasons. Claims 9-13 depend from claim 8 and are allowable for at least the same reasons. Claim 32 depends from claim 30 and is allowable for at least the same reasons. Applicant respectfully requests the withdrawal of the rejections and allowance of the claims.

Claims 6, 7, 14, 15, 20-24, and 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Harada, Bakhle and Takayama and further in view of Houchin et al. (U.S. Patent 5,047,861). The rejection is respectfully traversed and reconsideration is respectfully requested.

Claims 6 and 7 depend from claim 1 and contain similar limitations. Claims 14, 15, and 20-24 depend from claim 8 and contain similar limitations. For at least the reasons previously discussed, Harada, Bakhle and Takayama fail to disclose, teach, or suggest every limitation of claims 6, 7, 14, 15, and 20-24.

Claim 35 contain similar limitations as claim 1. That is, claim 35 recites an image processing apparatus comprising "a storage system for storing first data

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corresponding to at least one actual image and second data corresponding to at least one dark current reference image and at least one white reference image captured by a pixel array." As such, Harada, Bakhle and Takayama fail to disclose, teach, or suggest every limitation of claim 35.

Applicant respectfully submits that Houchin fails to cure the deficiencies of the Harada, Bakhle and Takayama combination discussed above. Houchin discloses capturing calibration data for each pixel under known illumination conditions and producing individual correction values for each pixel. (Houchin, Abstract). Houchin does not teach or suggest "storing ... second data corresponding to at least one dark current reference image and at least one white reference image captured by a pixel array," as recited by claim 35 and similarly, claims 6, 7, 14, 15, and 20-24. Applicant submits that the cited combination fails to teach or suggest every limitation of 6, 7, 14, 15, and 20-24. As such, Applicant respectfully requests the withdrawal of the rejection and allowance of the claims.

Claims 16-19 and 25-29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Harada, Bakhle, Takayama and Houchin in view of Baharav et al. (U.S. Patent No. 6,737,625). The rejection is respectfully traversed.
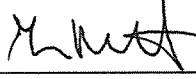
Claims 16-19 and 25-29 depend from claim 8. For at least the reasons previously discussed, the Harada, Bakhle, Takayama and Houchin combination fails to teach or suggest every limitation of claims 16-19 and 25-29. Baharav fails to cure the deficiencies of the Harada, Bakhle, Takayama and Houchin combinations discussed above. Baharav discloses a system for detecting and correcting bad pixels in an image sensor. Baharav, however, fails to teach or suggest "storing reference data corresponding to ... at least one dark current reference image and ... at least one white reference image," as recited by claims 16-19 and 25-29. Applicant submits that the cited

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combination fails to disclose, teach, or suggest every limitation of 16-19 and 25-29. As

such, Applicant respectfully requests the withdrawal of the rejection and allowance of

the claims.

In view of the above, Applicant believes the pending application is in

condition for allowance.

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